Biotoxin Bulletin

Volume 1, Issue 1

Marine Biotoxins Program Receives NOAA Technology Transfer Award for 2002

CCEHBR scientists, Drs. Frances Van Dolah and Gregory Doucette, are recipients of the 2002 NOAA Technology Transfer Award. This award recognizes exemplary activities that promote the domestic transfer of science and technology development within the Federal Government and result in utilization of such science and technology by American industry or business, universities, State or local governments, or other non-Federal parties. Drs. Van Dolah and Doucette have developed microplate receptor technology in response to a National consensus of need and provided extensive technology transfer and training opportunities to state agencies responsible for monitoring harmful algal blooms. This implementation of receptor technology by NOAA's Marine Biotoxins Program serves as a valuable tool for resource managers charged with mitigating the adverse impacts of harmful algal blooms on the economic, environmental, and social-well being of U.S. citizens.

Inside This Issue

HML Move Update

The move to the Hollings Marine Lab (HML) is currently in progress. Steve Morton, Peter Moeller, Mark Busman, Nikki Wiggins, Robert Roberts, Steven Eaker, Laurinda Smith, Heather Blankenstein, Kate Schaefer, and Kimberly Nowocin now permanently reside in HML. The labs are in the process of being set up and when they are completed the rest of the chemistry group will be relocated from CCEHBR to HML. If you would like a tour of HML just contact one of the above named people and ask for a tour. Any one of us would be glad to assist you. We would like to thank all of the folks at CCEHBR and HML that made our move as smooth as possible.

Front Entrance of Hollings Marine Lab (HML)

Congratulations to Kate Schaefer on completing her Masters in Science Degree in Environmental Studies!!

Bon Voyage!!

Best wishes to Michele Barbier and her family on their new endeavors in France.

Welcome to the Team!!!

We have had many new additions to the Marine Biotoxins Program within the past couple of months. Below is a listing of what they do and whose group they work with.

- *Jamie Colman*: Developmental toxicity of ciguatoxin in fish embryos (John)
- *Mike Twiner*: Characterization of algicidal bacteria and their metabolites (Greg)
- *Heather Blankenstein*: HAB community outreach (Steve)
- *Laurinda Smith*: Mass culture of toxic algae; harmful algae culture collection (Steve)
- *Jennifer Maucher*: Characterization of *Pfiesteria* toxin (John)
- *Loranne Creel*: Analytical Response Team Technical specialist (Fran)
- *Renuka Persad*: Ciguatoxin determination in barracuda (John)
- *Saadia Massey*: DSP-toxin from New England States (NSF intern- Steve)

Scientist Spotlight

John Ramsdell

John is currently working in conjunction with Chris Gordon at the EPA in Research Triangle Park, NC on a second round of animal based assays. These assays use Chloestyramine (used in humans to control cholesterol) to reduce intoxication by marine toxins. It is hypothesized that this drug would be able to treat the effects of CFP and PEAS. The animals are given the drug in their food then after one week are orally exposed to brevetoxin. Transmitters are used to measure body temperature of the animals and blood spot cards are used to measure the amount of brevetoxin in the blood of the animals.

John's future goals include the new design of the Biotoxins lab in order to increase the quality of the work environment

In his free time, John likes to picture what a toxin molecule looks like while traveling through the system of its host.

Travel Report

Fran & Greg in Vienna, Austria (4/16/02-4/19/02)

Fran and Greg recently attended a project planning meeting at the U.N. International Atomic Energy Agency in Vienna, Austria (16-19 April). The purpose of the meeting was to draft a regional technical cooperation proposal for the transfer of our Program's receptor assay technology to three African countries (South Africa, Namibia, and Angola), all of which have issues concerning the detection of at least one group of marine algal toxins. Two people from each of the African nations, representing end-users of the receptor assay technology, attended the meeting and provided input into the proposal. This project will be modeled after the ongoing IAEA-sponsored S.E. Asia program, with the African end-users visiting our laboratory next year for training and returning to their home institutions to begin conducting the assays. This will be followed by an inter-calibration study coordinated through our laboratory, and then implementation of the assays as a component of their toxin monitoring programs. All of the African representatives were very keen to acquire the receptor-based technology, as their rapidly growing fishery and aquaculture efforts will increase demands on testing for biotoxins in products for export to world markets.

The IAEA is interested in supporting the use of receptor assays internationally for regulatory purposes once regulatory approval has been obtained, as their mission is to encourage peacetime use of radioisotopes. They have a long history of supporting other assays, such as RIAs for various agricultural applications, and could provide over the long term such things as the tritiated toxin analogs needed to run the assays, annual inter-laboratory calibration exercises, and possibly even membrane preps (e.g., the GLUR6 membranes for DA, through a contract with a business). FDA currently provides STX standard to all mouse assay labs internationally, and they have expressed a willingness to provide such standards to receptor labs as well.

ART Area

Coordinator: Tod Leighfield

The Analytical Response Team (ART) is built upon the principles of a sense and respond unit. A management team directs every step of the sample analysis and communication process, and for each unusual mortality or HAB event generates a report to the agency or researcher who requested the analysis. The ART works with a variety of organizations including the U.S. Food and Drug Administration, National Marine Fisheries Service, Mote Marine Laboratory, SCDNR, and SCDHEC.

The ART uses highly sophisticated instruments and techniques rather than animal-based tests to analyze toxins in minute quantities with absolute identification down to the most elemental chemical composition. High-tech tools used to analyze samples for the presence of algal toxins include cell-based sensors, receptor binding assays, antibody-based assays, liquid chromatography, mass spectrometry, and magnetic resonance. Detailed analyses are performed on samples ranging from marine mammals, birds, and fish to humans and algae.

This excerpt was taken from the Spring 2002 South Carolina Task Group on Harmful Algae Newsletter.

Florida: 1999 Bottlenose Dolphin Mortality

- anomalous stranding rate: ~3 animals/week: September 1999
- concurrent *Karenia brevis* bloom
- tissue samples tested by receptor assay & LC-MS/MS
- PbTx confirmed (1-50µg/100g)

SCPMN Section

Director: Steve Morton
Coordinator: Kate Schaefer

The SCPMN has 28 sampling sites that are maintained by 19 school groups and 6 citizen groups. There are 5 new school groups that are awaiting training. These include: Whale Branch Middle School, Lady's Island Middle School, Hilton Head Middle School, Hilton Head High School, and Dafuskie Middle School. There are 4 parks/recreational facilities that utilize the SCPMN training and knowledge to begin sampling at their location and train citizen and school groups that access their recreational area. These facilities include: CawCaw Interpretative Center, Edisto Beach State Park, Hunting Island State Park, and Pritchards Island.

Kate Schaefer sampling with Hanahan High School

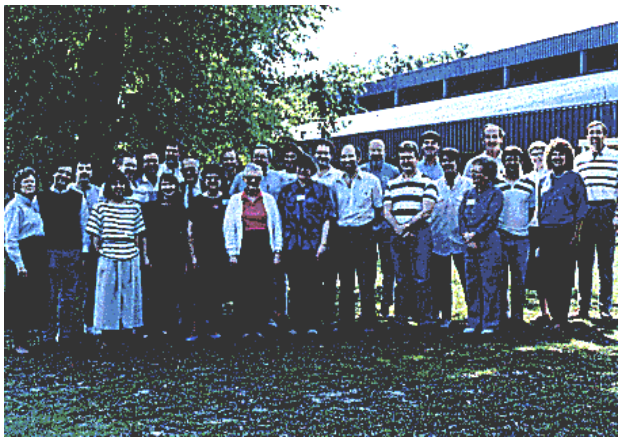
The overall goals of the SCPMN are:

- Create GIS (Geographic Information System) database
- Expand sampling along coastal counties, moving inland over the next couple of years
- Create a general species list for South Carolina
- Learn more about harmful algae
- Be able to predict harmful algal blooms

!!! Exciting Events !!!

- The new Scanning Electron Microscope at HML is up and running. See Steve Morton for more information.
- An hp scanjet 7490c with slide attachment and automatic document feeder has been purchased and is available for use by the Marine Biotoxins Program. It is located in the first floor bullpen area of HML. Directions on how to use it are posted above the scanner.
- Check out the new Biotoxins website at www.chbr.noaa.gov/CoastalResearch/NewWebsite/index.html
- The photo library has been placed on Spottail\Swap\mbpPictures –if you have any pictures that are not in the library please let Kimberly Nowocin know

Happy 10th Birthday to the Marine Biotoxins Program!!!



1992 Biotoxin workshop participants

1992

Workshop to Develop a National Plan for Marine Biotoxins and Harmful Algae

A workshop was convened at the NOAA Charleston Laboratory to formulate a National Plan for the prediction, control, and mitigation of the effects of harmful algal blooms on marine biota of the United States and to promote the safe consumption of seafood. From a number of nationally recognized leaders in the areas of marine biotoxins, harmful algae, seafood safety, and public health, 24 participants were selected to represent the critical scientific disciplines and all regions of continental North America.

The goal of this workshop was to formulate a National Plan, consisting of a series of recommendations intended to address the major impediments to progress in the management of, and scientific research on, harmful marine algae and associated toxins.

June 2002

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26 May	27 Memorial Day	28	29	30	31	1 Mark Busman in Orlando, FL for ASMS meeting (1-7)
2	3	4 Peter Moeller in Richland, WA for NMR meeting/PNNL Lab (4-7)	5	6 John Ramsdell, Steve Morton, Greg Doucette in Beaufort, NC for lab visit (6-7)	7	8
9	10 Fran VanDolah in Victory, Canada for ASLO seminar (10-15)	11 Stacie Dover & Ricky Woofter in Research Triangle Park, NC	12	13	14 Bring a Child to Work Day @ CCEHBR	15
16	17 Fran VanDolah in Santiago, Chile for IAEA meeting (17-23)	18	19 Brown Bag Seminar	20	21 Comments on New Website	22
23	24	25	26 Biotoxin Birthday Workshop**	27	28	29
30	1 July	2	3	4 Independence Day	5	6

** The Marine Biotoxins Program is celebrating its 10th anniversary and to commemorate this event John Ramsdell will be the guest speaker. The workshop will be in the CCEHBR conference room at 1:30pm.

"Phycologists are by definition deficient people. They have no real mental capacity and are generally a drain on society. I am pleased however that the biotoxins program has reached out to help one of the unfortunate few. I want all to help Steve along. One day he too may be a productive member of society. Thanks Biotoxins for caring!"

Peter the Chemist

Marine Biotoxin Program Telephone Extensions

Anderson, Ashley	8511	Miller, Jeanine	8669
Barnhorst, Amanda	8682	Moeller, Peter	8867
Blair, Tricia	8511	Morton, Steve	8857
Blankenstein, Heather	8832	Nowocin, Kimberly	8835
Bottein, Yasmine	8589	Persad, Renuka	8583
Colman, Jamie	8637	Ramsdell, John	8510
Creel, Loranne	8660	Roberts, Robert	8507
Doucette, Greg	8528	Schaefer, Kate	8830
Dover, Stacie	8583	Schock, Tracey	8811
Eaker, Stephen	8685	Smith, Ed	8511
Hollen, Lisa	8681	Smith, Laurinda	8902
Hsia, Michelle	8811	Twiner, Mike	8687
Jackson, Wes	8511	Tyler, Jeral	8680
Leighfield, Tod	8631	Van Dolah, Fran	8529
Massey, Saadia	8811	Wiggins, Nikki	8537
Maucher, Jennifer	8595	Woofter, Ricky	8632
Mikulski, Tina	8668		

Michele Barbier's New Contact Information

Email: michele_jenamed@yahoo.fr

Work:

Ifremer/DEL/MP/PN
Rue de l'Ile d'Yeu
BP 21105
44311 Nantes cedex 03, France
Fax: 33 (0)2 40 37 40 71 or 73

Home:

Le Lac
74 910 Challognes, France
Fax: 33 (0)4 50 77 92 80

If you have information to be placed in the Biotoxins Bulletin, please contact Kimberly Nowocin
email: kimberly.nowocin@noaa.gov phone: 762-8835 fax: 762-8737